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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,571	07/26/2002	B. Gene Cawlfeld	P-B021	3236

7590 10/19/2005

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EXAMINER

MARKOFF, ALEXANDER

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,571

Applicant(s)

CAWLFIELD, B. GENE

Examiner

Alexander Markoff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28, 32 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28 is/are allowed.
- 6) ☒ Claim(s) 1-27, 32 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-27 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefinite because it is not clear what is referenced as promoting physical and chemical phenomena.

It is not clear how recitation of these phenomena limits the claims.

Claims 1-19 are indefinite because they require the transducers being below the substrate, but provide no recitation of position of the substrate. Thereby the position of the transducers and the structure of apparatus are not defined.

Claims 1-10 are indefinite because the term "the transducers" lacks proper antecedent basis.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-11, 13-20, 23-27, 29, 32 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Hansen et al (US Patent NO 6,726,848).

Hansen et al teach an apparatus and method as claimed. See entire document, especially description of the first and third embodiments, Figures 1a-d, 2a-c, 3a-b, 5 and 8, columns 3-23.

Hansen et al teach an apparatus and a method utilizing megasonically energized interface and disclose the same method steps and apparatus means as claimed. It is noted that since the entire substrate is moved through the zone of the interface at least for some time the substrate is above of all of the transducers.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al.

Hansen et al teaches an apparatus as claimed except for specific recitation of level switches and an automatic process controller, connected to the switches.

Hansen et al, however, teach a controller, which controls all the operations, such as related to measurement and injection of fluids, vapors, gasses, etc. It would have been obvious to an ordinary artisan at the time the invention was made that the apparatus of Hansen et al is provided with level sensors to enable operation of the apparatus. On the other hand, it would have been obvious to an ordinary artisan at the time the invention was made to provide apparatus of Hansen et al with any conventional sensors to enable automatic control of the apparatus by the disclosed controller.

8. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al in view of Bergman (US Patent NO 6,192,600).

Hansen et al teach a method as claimed except for recitation of not moving the substrate during the treatment steps (C) and (D).

Hansen et al teach moving the substrate through the energized interface.

However, moving the substrate and moving the liquid to contact the substrate with an energized interface were known alternatives in the art of cleaning semiconductor wafers as evidenced by Bergman. See at least Figures 2, 4, 6-8 and the related description.

It would have been obvious to an ordinary artisan at the time the invention was made to move the energized interface by moving the level of liquid in the method of

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Hansen et al relative to unmoving substrate as taught by Bergman in order to contact the substrate with the interface with reasonable expectation of success in order to reduce probability of contamination and substrate damage due to avoiding of the use of moving mechanical parts because Bergman teaches moving the liquid to contact the substrate with an energized interface as alternative to moving the substrate.

Allowable Subject Matter

9. Claim 28 is allowed.

10. The following is an examiner's statement of reasons for allowance of the claim: The prior art fails to teach or fairly suggest to introduce in the method of Hansen et al a drying process as claimed. Hansen et al teach a different drying approach and it would not be obvious to an ordinary artisan to introduce such complicated drying procedure as claimed in the method of Hansen et al.

These reasons were provided in the previous Office action.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

11. Applicant's arguments filed 8/01/05 and 6/20/05 have been fully considered but they are not persuasive. The applicants amended the claims the newly introduced limitations are addressed above.

With respect to rejection made under 35 USC 102: The applicants argue that Hansen et al do not teach the transducers below the substrate for energizing the interface.

This is not persuasive. First, with respect to method claims: Hansen et al teach transducer below the cleaning chamber. The applicants admitted this teaching in their Remarks, but argue that the transducer would not energize the interface to the needed level. This is not persuasive because the level of energizing is not recited by the claims. Second, with respect to all claims: since Hansen et al require the entire substrate is moved through the zone of the interface at least for some time the substrate is above of all of the transducers.

The applicants separately argue newly introduced limitation of claim 18. This claims as amended recite a function of the claimed means to propel particles into overflow while the interface is above the substrate. The applicants argue that in Hansen et al overflow occurs only when the substrate is in contact with the workpiece. This is not persuasive. First, the apparatus of Hansen et al is fully capable to perform the claimed function due to the disclosed structure. Second, in contrast to the applicants non supported statement Hansen et al teach the claimed subject matter. See at least Figures 2A, 5, 8 and the related description where overflow is shown while the substrate is below interface.

With respect to the rejection made under 35 USC 103:

The applicants argue that there is no suggestion that method of Bergman should be used in combination with the method of Hansen et al. This is not persuasive because

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Bergman teaches the moving of substrate and the interface as alternatives. The applicants make a statement that in the method of Hansen et al modified by teaching of Bergman the transducers would be almost immediately destroyed. This is not persuasive because in contrast to the applicants statement Bergman teaches how to prevent such.

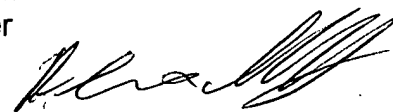
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexander Markoff
Primary Examiner
Art Unit 1746



ALEXANDER MARKOFF
PRIMARY EXAMINER

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